Howard, 1336 30th st. N. W. President Gill occupied the chair. Those present were Messrs. Schwarz, Gill, Stiles, Howard, Marlatt, Chittenden, Benton, Ashmead, Pergande, Cook, Johnson, Busck, Fox, Mann, Patten, Waite, Morris, Judd, Hay, Swingle, Chapin, Heidemann, Caudell, Kotinsky, Jones, and Currie; also the following visitors: Messrs. Gould, Jared Smith, Barber, Taylor, Ulke, and Simonds.

Mr. R. S. Clifton was elected an active member in the society.

The corresponding secretary read the following paper by Mr. Pergande:

THE ANT-DECAPITATING FLY.

By Theodore Pergande.

For many years past, when rambling about the woods surrounding the city of Washington, I frequently came across larger or smaller colonies of the so-called carpenter ant (*Camponotus pennsylvanicus* De Geer), the largest and most powerful of our indigenous ants, which, as a rule, prefers to select for its home, dead, or partially decayed, forest trees, stumps, and logs in which it excavates cavities of various sizes and shapes, for the purpose of having a congenial home and safe dormitories for its progeny. Frequently, on finding such a colony, I watched them excavating new chambers, the detached chips of which were either carried patiently to the base of the tree or stump, or simply dropped to the ground. In watching this work and seeing the chips dropped or deposited, I frequently noticed around the base of the tree, stump, etc., numbers of heads of this ant strewn about, which always aroused my curiosity as to the cause of this strange phenomenon. Thinking, however, that the ants to which these heads belonged had succumbed to disease or old age while in the colony, and that their earthly remains had been disposed of in this simple manner, I dropped the subject entirely. Recently, however, this subject of heads without bodies flashed suddenly on my mind, while in the woods near Cabin John Bridge, Md., on the 5th of September, 1900, after concluding some observations on certain insects inhabiting the witchhazels and birches at the edge of the small creek at the bottom of the little valley. I ascended the steep and wooded slope for the homeward trip; getting tired and out of breath when about two-thirds up the hill, I stopped to accumulate enough steam or lung power to enable me to gain the crest of the slope. While standing there to readjust my respiratory organism, I happened to be near a beech tree, which in this locality abounds. Casually looking over the smooth trunk I ob-

served a small worker of *Camponotus pennsylvanicus*, head downwards, about five feet above the ground, which had evidently come down from a foraging expedition, collecting the honey-dew or nectar of *Phyllaphis fagi*, which was very abundant on this tree. As a rule, these ants are very active in ascending and descending trees; this particular specimen, however, had stopped short for some mysterious reason and remained in this position while I was watching it and kept motionless until I touched it. The poor creature appeared to be tired and sleepy, and moved rather aimlessly and laboriously to one side on being touched. Being urged again, it moved a short distance in the opposite direction, seemingly in a trance or having lost the memory of its home. The action of this specimen appeared rather remarkable to me, since this species is very active, especially when disturbed, when it darts along at a rapid gait; it seemed to have lost control of its limbs and movements of its body. The head was drooping, as if of no use to its owner, though the antennæ were still moving. In fact, it seemed as if it had lost its head. In order to discover something of the cause of this ailment I transferred it to a large vial and took it home. After an hour or two of resting, after reaching my home, I examined the vial to learn how my little sufferer was getting along, but found to my surprise that the poor thing was minus a head, though still alive and quite as active as before on being urged to move about. Further investigations of the contents of the vial disclosed the head at the farther end of the vial, minus its antennæ and mouth parts, which were some distance in front of the head, and, while examining the skull of the ant through the glass, I observed the anterior part of a Dipterous larva protruding from the anterior opening of the shell, swaying back and forward, but soon to retire into the empty shell of the head. Next morning the poor victim was dead.

Having kept the specimen reasonably damp, I was rewarded and delighted to find on the morning of the 21st of September, or 17 days after the head had been cut off, a very handsome, extremely active and agile little fly in the vial, scurrying along with extremely rapid motions, only to stop now and then to clean itself and to exercise its horny genital apparatus in anticipation of the important work to be performed by it.

To continue my observations, and possibly to obtain additional infested ants, I went again to the same locality on the 24th of September, but failed utterly in discovering additional specimens showing symptoms of being infested. Being disappointed, and sitting down near the base of a beech tree badly infested with *Pemphigus imbricaria*, suspecting that there might be a colony of this ant at or near its base, I removed the loose bark, just above the ground, and found that I was not mistaken, for, as soon as it

was removed, there tumbled and scrambled forth numbers of this ant in utter consternation, which apparently had been hiding for some unexplained reason, instead of climbing the tree in quest of the abundant honey supply above. Some of these ants, in their headlong haste to escape imminent danger, were captured and placed in a vial in the hope of breeding one or more of the flies, though without success. All others succeeded in hiding themselves under fragments of sticks and dry leaves, which had accumulated around the base of the tree. On removing this accumulated waste gradually, I found that the ants had their formicary under and between the larger roots of the tree, and on being again disturbed they scampered in evident alarm for their underground passages. While this was going on most of the exit holes had been closed with earth, preventing the stragglers from entering their home in time. While watching the frantic efforts to conceal themselves, I observed minute objects flitting rapidly about and hovering above and near the spot where the majority of the ants had disappeared, alighting now and then in quest of some particular object. The light in this particular locality is rather dim and subdued, with a streak of sunlight here and there, which renders it very difficult, especially at the surface of the ground, to distinguish with any certainty the minute insects whirling about near the entrance of the formicary. Being suspicious, however, that some of those animated dots, darting back and forth, might be the enemy of these ants, I managed to capture four of them, and found on examination that they really belonged to the species infesting the head of this ant, though all of them were females. While thus engaged I observed one of the ants which had secreted itself under one of the roots, make its appearance for the obvious purpose of reaching the entrance to the nest, and observed that no sooner had it made its appearance than one of those winged atoms made a dart for it, which frightened the poor creature to such a degree that it almost tumbled over itself when it scrambled in great haste to hide itself. This observation seems to indicate that the ants are in mortal terror of their diminutive foe and deadly enemy.

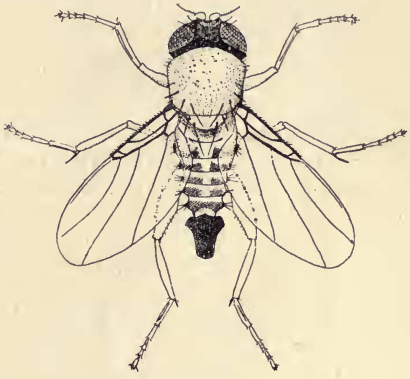

FIG. 20.—*Apocephalus pergandei*. Adult—greatly enlarged.

Another trip was again made to the same locality on the 27th of September. But very few of the ants were observed, while the flies were still more scarce. Only one female was captured, which was still alive and very active the next morning. On placing one of the ants in the tube containing the fly, I soon observed that the ant had become aware of the presence of its enemy and commenced to run restlessly back and forth, the fly watching it rather interestedly; coming accidentally in contact with the fly, the latter darted at the ant, which, enraged at this unsuspected attack, went for it with a furious rush and widely open mandibles. For a moment there was a general mix-up, reminding one strongly of two tom-cats in a fight, during which combat the ant was trying hard to catch the fly with its legs and mandibles, though on account of its extreme agility it rushed between the legs of the ant and escaped unharmed. This battle was kept up for some time, the fly jumping on the back and head of the angry ant till both became tired out, especially the ant, which walked about slowly, cleaning her head, mouth, antennæ and legs; the poor creature became at last so completely exhausted that her legs commenced to tremble. The fight between the two had evidently lasted through some part of the night, when the ant at last succeeded in capturing the fly, which it crushed to a shapeless mass. On examining the ant the next morning, I failed to find any eggs on any part of its body.

After rearing this fly I wrote to the distinguished European writer on Formicidæ, Professor Charles Emery, and asked him whether he knew of any observations upon the decapitation of ants. He replied that nothing of this nature had been called to his attention, except the fact that *Formica exsecta*, a very savage fighter, in the course of its battles frequently cuts off the heads of its opponents.

Later, mentioning the matter to Dr. L. O. Howard, he called my attention to the observations reported by Dr. W. H. Fox, at the September, 1887, meeting of this society, published in Volume I, pp. 100 and 101. Dr. Fox found the decapitated heads of *Camponotus pennsylvanicus* at Hollis, New Hampshire, in the summer of 1887, and discovered that they contained Dipterous larvæ. At a meeting of the Biological Society of Washington, held in October, 1887, Dr. Howard mentioned this observation of Dr. Fox's and suggested that the Dipterous larvæ in question might belong to the family Conopidæ, the larvæ of certain species of which in Europe are parasitic upon Hymenopterous insects. The present observations set the matter at rest and indicate the true nature of the parasite. It is probably identical with or at least congeneric with the species observed by Dr. Fox in New Hampshire. The adult parasites were referred to Mr. Coquillett, who finds that they constitute a new genus of the family Phoridæ.

His descriptions of the new genus and the new species are appended.

Apocephalus, Coquillett, nov. gen.

Near *Phora*, but the female furnished with a horny ovipositor about as long as the last three abdominal segments taken together. Frontal setæ reclimate, two pairs of vertical and orbital bristles, a pair of postvertical and ocellar bristles, the latter situated lower than the lowest ocellus, also a pair of bristles above the base of the antennæ; third joint of antennæ oval, the arista rather robust, pubescent; thorax in profile strongly convex; tibiæ destitute of long bristles on the outer side; second heavy vein of the wings forked, four slender veins of which the first two and last one are arcuate, the third gently curved S-shaped. Male unknown. Type, the following species:

Apocephalus pergandei, Coquillett, n. sp.

Head black, opaque, gray pruinose, the mouth parts and antennæ, except the arista, yellow; thorax yellow, the mesonotum polished; a pair of short acrostichal bristles, a larger dorso-central pair, two large and a median small pair of supra-alar bristles, one humeral and two posthumeral bristles, also two on the pteropleura; scutellum yellow, bearing four bristles, middle of metanotum brown; abdomen yellow, opaque, a pair of spots on the second segment and sometimes on the two following, alteral vitta and the last segment black; abdomen bare except along the sides where each segment except the first bears a few black bristles; ovipositor black, polished, flattened, lobed near the base where it is slightly wider than the last abdominal segment, the remainder of nearly an equal width, the apex truncated; a rounded median carina and a pair of oblong cavities near the base; legs yellowish white, the tarsi brownish yellow, middle tibiæ each bearing a strong spur at apex of the inner side; wings hyaline, veins brown, costal fringe scarcely longer than the diameter of the costal vein; halteres yellow, apices of the knobs blackish; length, including the ovipositor, 1.5 mm. Five female specimens, one of them bred from a head of *Camponotus pennsylvanicus*, by Mr. Th. Pergande, to whom I take pleasure in dedicating this interesting species. Type No. 5201, U. S. National Museum.

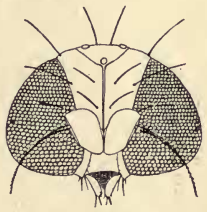

FIG. 21.—*Apocephalus pergandei*. Head from front — greatly enlarged.

No species of *Phora* known to me possesses the three characters of reclimate frontal bristles, a branched second heavy vein and bristleless tibiæ; this fact, and the possession of a long, horny ovipositor, added to the unique habits, would appear to warrant the erection of a separate genus for the reception of the present species.—D. W. Coquillett.